of the block as a predetermined unit of data from the code data by processing the code data converted by said conversion means;

marker rough center calculation means for calculating rough centers of the markers detected by said marker detection means;

pattern code detection means for detecting a pattern code constituted by a plurality of dots with reference to the rough centers of the markers calculated by said marker rough center calculation means;

pattern code dot center calculation means for calculating centers of the dots of the pattern code detected by said pattern code detection means;

marker true center calculation means for calculating coordinate positions of a plurality of true centers of the markers that minimize evaluation functions representing relative coordinate errors of the center coordinate positions of the dots of the pattern code calculated by said pattern code dot center calculation means and center coordinate positions of dots of a predetermined pattern code with respect to the true center coordinate positions of the markers;

data reading coordinate calculation means for calculating a data reading coordinate position in the block on the basis of the coordinate positions of the plurality of true centers of the markers calculated by said marker true center calculation means;

data reading coordinate discrimination means for discriminating whether the data reading coordinate position calculated by said data reading coordinate calculation means indicates a center or boundary of a pixel constituting the image by performing a calculation at an accuracy not less than a predetermined multiple of the pixel constituting the image;

reading pixel black/white discrimination means for, when said data reading coordinate discrimination means determines that the data reading coordinate position indicates the center of the pixel constituting the image, extracting information from one pixel on the image indicated by the data reading coordinate position; and

reading surrounding pixel black/white discrimination means for, when said data reading coordinate discrimination means determines that the data reading coordinate position indicates the boundary of the pixel constituting the image, extracting information from a plurality of pixels contacting the boundary indicated by the data reading coordinate position and discriminating vanishing data indicating whether or not information is indefinite.

4. An apparatus according to claim **3**, further comprising address code vanishing correction means for performing vanishing correction of an address code used for identifying the block on the basis of the vanishing data discriminated by said reading surrounding pixel black/white discrimination means.

5. An apparatus according to claim **3**, further comprising:

modulated data correction means for correcting modulated data recorded in the block on the basis of the vanishing data discriminated by said reading surrounding pixel black/white discrimination means;

vanishing data changing means for changing the vanishing data upon correction of the modulated data corrected by said modulated data correction means; and

means for ORing the vanishing data changed by said vanishing data changing means to obtain modulation unit vanishing data.

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